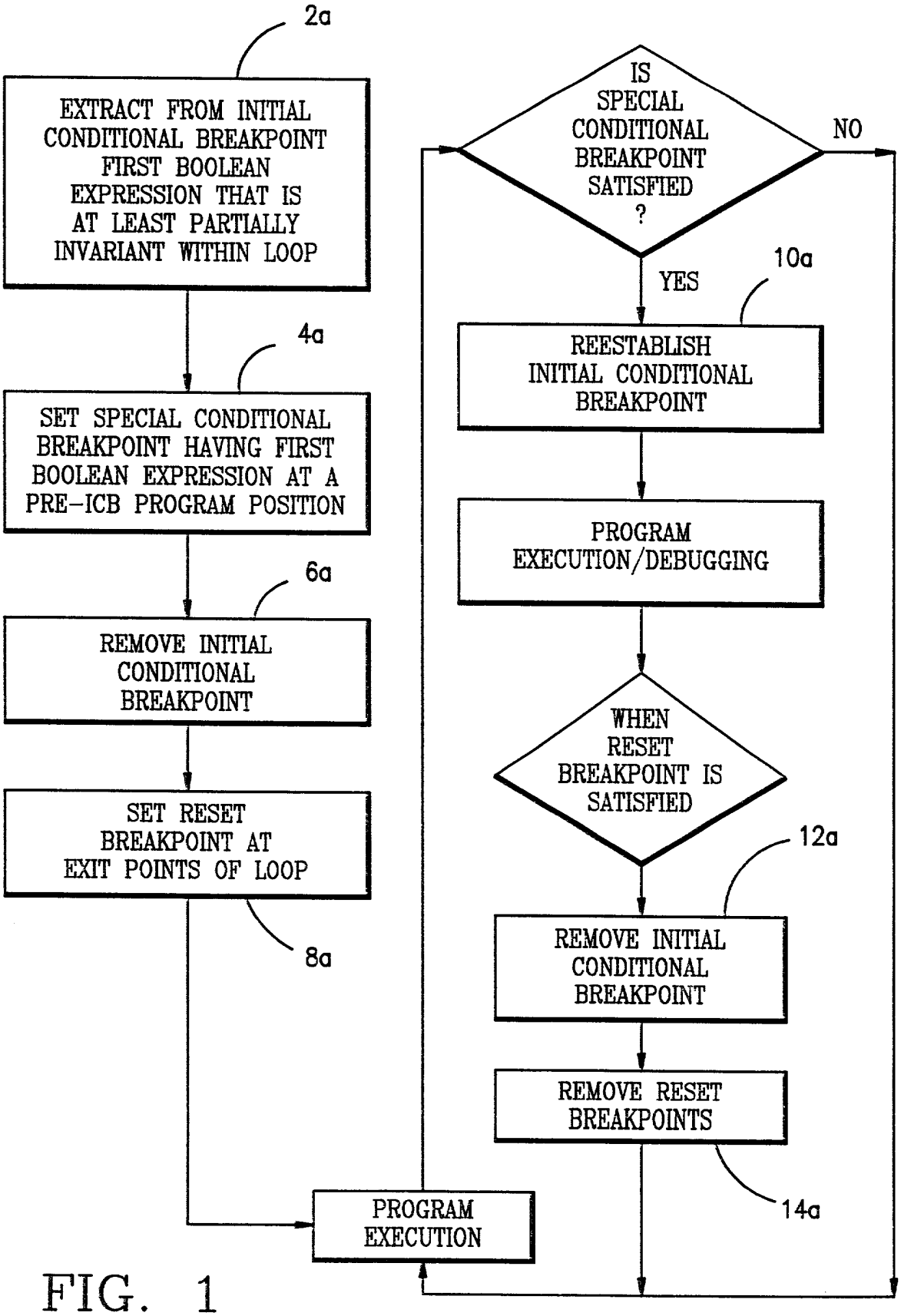

FIG. 1

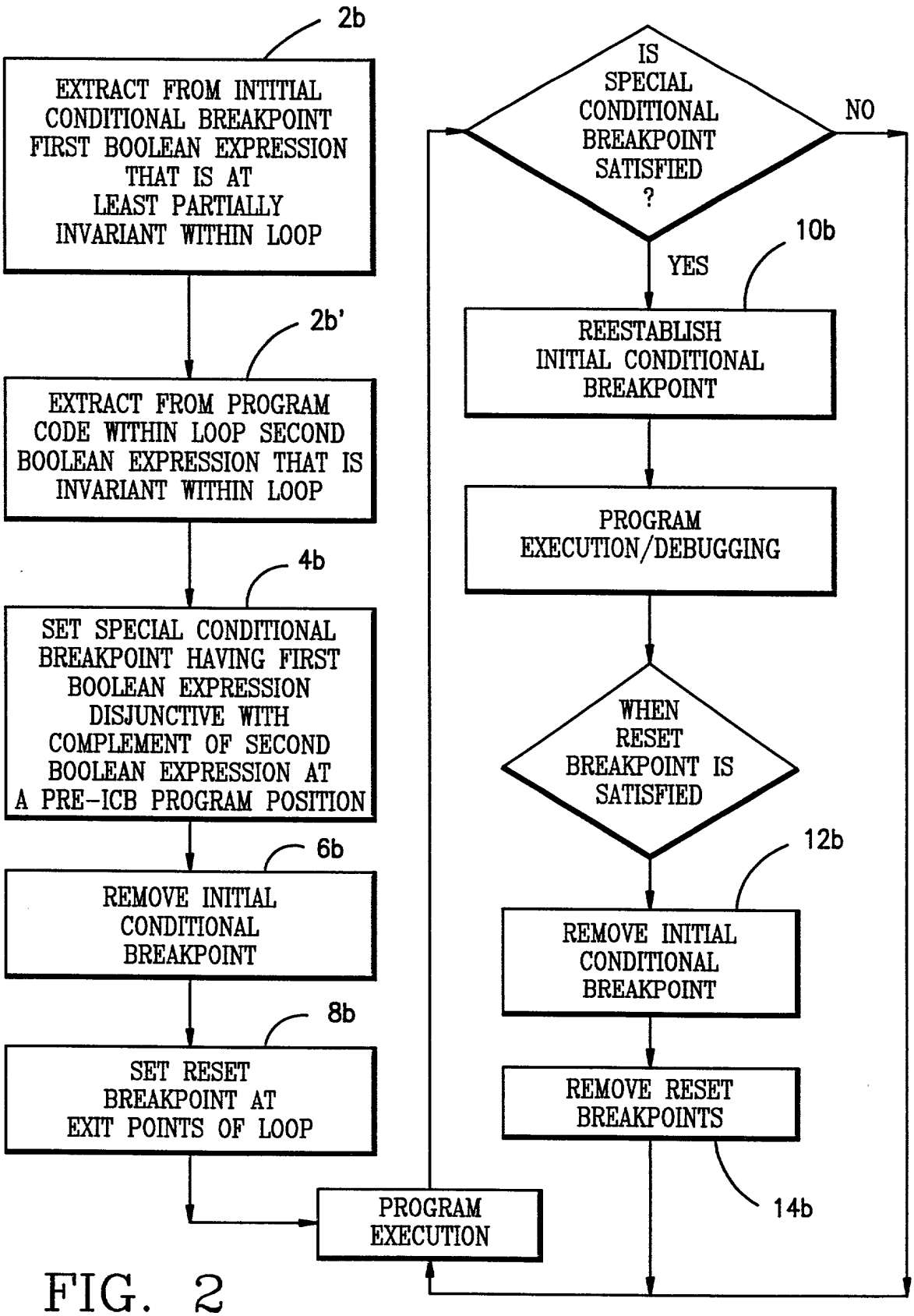

FIG. 2

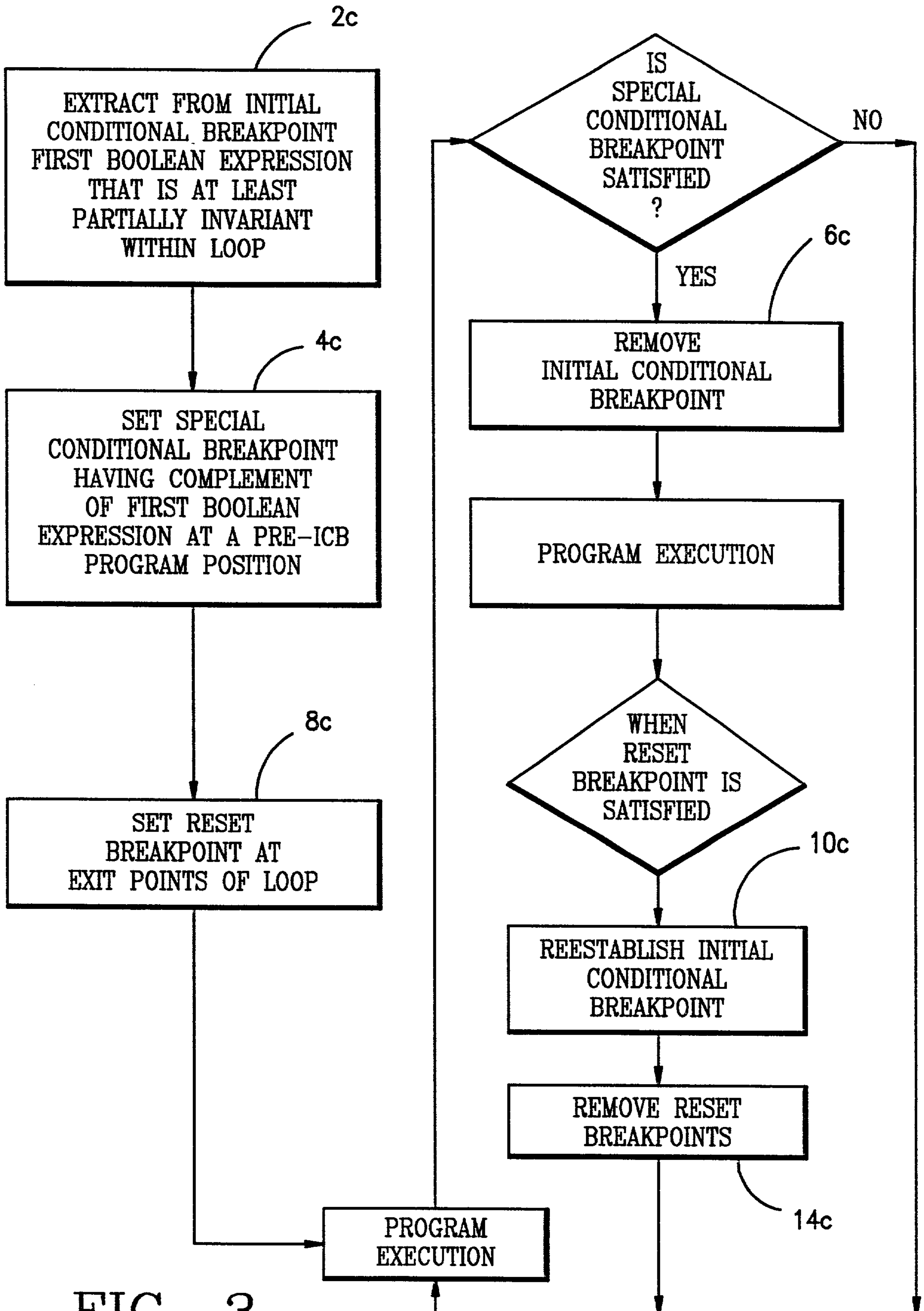

FIG. 3

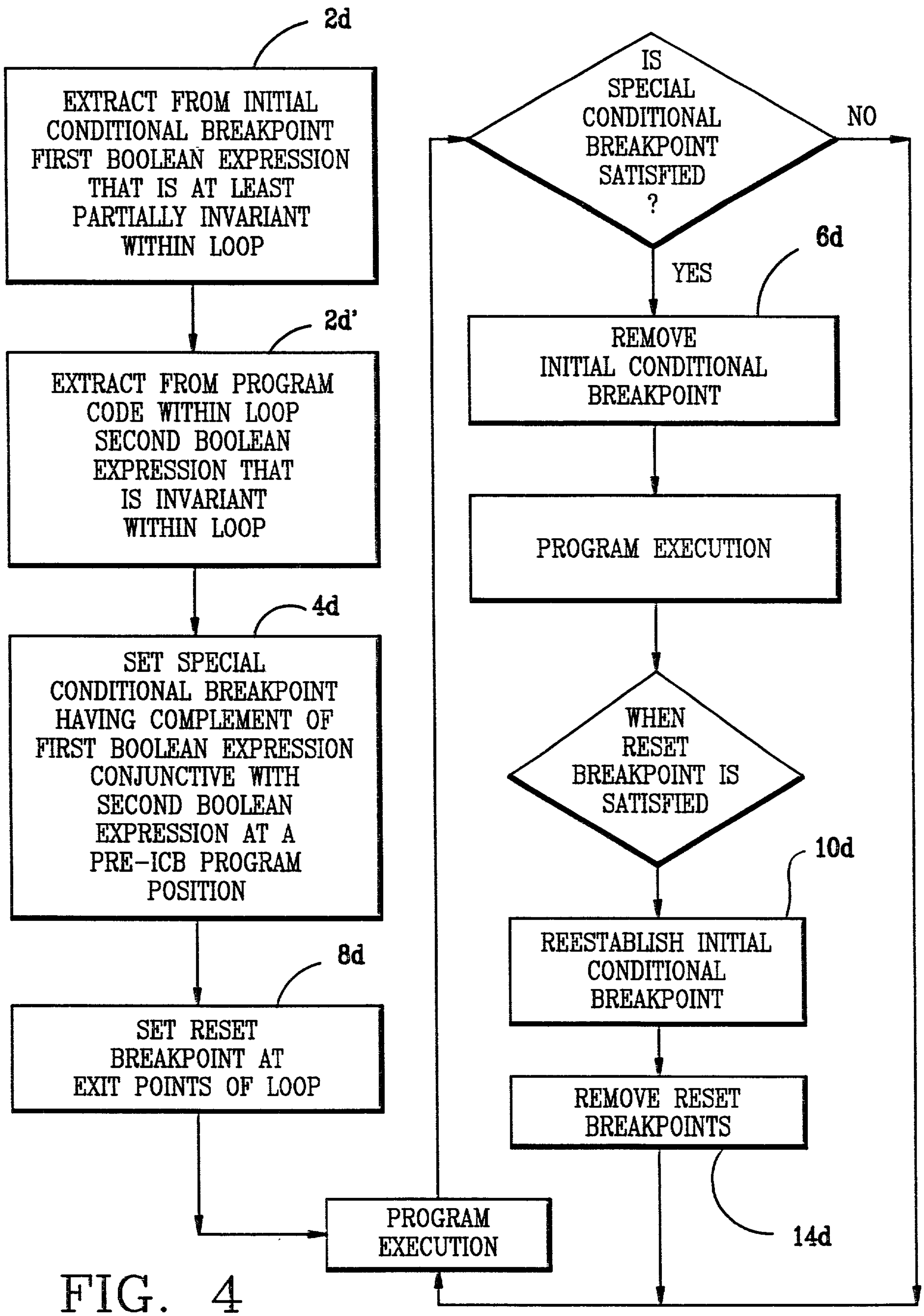
2d
EXTRACT FROM INITIAL CONDITIONAL BREAKPOINT FIRST BOOLEAN EXPRESSION THAT IS AT LEAST PARTIALLY INVARIANT WITHIN LOOP
2d'
EXTRACT FROM PROGRAM CODE WITHIN LOOP SECOND BOOLEAN EXPRESSION THAT IS INVARIANT WITHIN LOOP
4d
SET SPECIAL CONDITIONAL BREAKPOINT HAVING COMPLEMENT OF FIRST BOOLEAN EXPRESSION CONJUNCTIVE WITH SECOND BOOLEAN EXPRESSION AT A PRE-ICB PROGRAM POSITION
8d
SET RESET BREAKPOINT AT EXIT POINTS OF LOOP
PROGRAM EXECUTION
IS SPECIAL CONDITIONAL BREAKPOINT SATISFIED ?
NO
YES
6d
REMOVE INITIAL CONDITIONAL BREAKPOINT
PROGRAM EXECUTION
WHEN RESET BREAKPOINT IS SATISFIED
10d
REESTABLISH INITIAL CONDITIONAL BREAKPOINT
REMOVE RESET BREAKPOINTS
14d

FIG. 4

```
Line  1        foo_1 (K)
      2        {
      3              Y=2
      4              for(J=0;J<10000;J++)
      5              {
      6                    A[J]=K+J;
      7              }
      8              return (K+Y);
      9        }
```

20 ICB =BREAK 6 WHEN K>999

22 BE_1 =K>999

26 SCB =BREAK 4 WHEN K>999

SCB' =BREAK 4 WHEN !(K>999)

28 RB =BREAK 8 RESET

FIG. 5

```
Line  1      foo_2(K,FLAG)
      2      {
      3          Y=2;
      4          J=0;
      5          while(J<10000)
      6          {
      7              A[J]=K+J;
      8              if(FLAG==TRUE)
      9                  K++;
      10             else
      11                 return(K+Y);
      12             J++;
      13         }
      14         Y+=K;
      15         if(A[J-I]>500)
      16             return(K+Y);
      17         K-=Y;
      18         return(K-Y);
      19     }
```

20

ICB =BREAK 7 WHEN (K>999 && K<1050)

22 BE_1 =((K>999) && (K<1050))

24 BE_2 =(!(FLAG==TRUE))

SCB =BREAK 4 WHEN ((K>999 && K<1050) || (FLAG==TRUE))

26 SCB' =BREAK 4 WHEN ((!(K>999 && K<1050)) && (!(FLAG==TRUE)))

28 RB_1 =BREAK 11 RESET

RB_2 =BREAK 14 RESET

FIG. 6